Fig. 6 shows an exemplary final local network availability for day-type weekday in a particular network area according to embodiments of the invention.

Fig. 7 shows an exemplary partitioning of bandwidth according to embodiments of the invention.

Fig. 8 software module view of an exemplary datacast distribution system according to embodiments of the invention.

Fig. 9 shows exemplary scope of three access keys according to embodiments of the invention.

Fig. 10 shows the use of the standard IPSEC protocol.

Fig. 11 shows the use of the custom IPSEC protocol of embodiments of the invention.

Fig. 12 shows an example of scalability of the DDS according to embodiments of the invention.

Fig. 13 shows an exemplary selection of bandwidth blocks by a content provider according to embodiments of the invention.

Fig. 14 shows an exemplary general purpose computer.

Detailed Description of the Invention

According to the present invention there is provided a datacast distribution system (DDS) which allows for the distribution to reception terminals of content such as movies, music, games, software, and the like using a new or existing DVB-T (terrestrial digital video broadcast) network.

Bandwidth Partitioning and Allocation

DVB-T offers a high bandwidth transmission channel wherein delivery is typically multicast. Planning is necessary to make optimum use of this bandwidth.

Bandwidth partitioning and allocation according to one embodiment of the present invention will now be described. A first step may be to define network areas in the DVB-T broadcast network into which the DDS is to be deployed. A network area comprises one or more cells and/or broadcast areas of the DVB-T network. In the example of Fig 1, network area 1 is comprised of cells 1-4 while network area 2 is comprised of cells 5-8. As will be described in detail below, some content will be designated for "global" distribution, while other content will be designated for distribution to a single network area. All network areas will receive content designated for "global" distribution, whereas content will be designated for transmission only to a certain network area will be received only in that area.

A second step may be to define day-type profiles. Day-types are defined such that any date on the calendar can be assigned to one of the defined day-types. For example, four day-types may be defined: "weekday," "Saturday," "Sunday," and "holiday." In other embodiments more or less day-types may be defined. In certain embodiments a date on the calendar may be assigned to more than one day-type.

A next step may be to map dates to day-types. Fig. 2 continues the above example by showing an exemplary mapping for the second-to-last week of December 2002 wherein each day is mapped to one of the defined day-types. Thus, for example, December 22 is mapped to "Sunday," December 23 to "weekday," and December 25 to "holiday." Mapping may be done for any amount of time into the future. For example, mapping may be done for each date occurring within the next five years.

Mapping may be done for both a monitoring period and an deployment period. The monitoring period is the period of time during which measurements of free bandwidth are made in the network for the purpose of allocating and partitioning bandwidth, whereas the deployment period is the period of time during which the DDS operates on the network according to the allocations and partitions. For example, when the DDS is deployed in an existing terrestrial DVB broadcast network, there might be a monitoring period of three months. Thus a next stop in bandwidth partition and allocation may be to measure and record free bandwidth in each network area for the monitoring period. Fig 3, for example, shows an exemplary graphical representation of the recording of the free bandwidth in network area 1 on January 3, 2001.

Next, a preliminary local network availability may be defined for each day-type in each network area. According to one embodiment, this may be done by choosing a number of days of the monitoring period that were mapped to a particular day-type, overlapping the graphical representations of free bandwidth corresponding to those chosen days, and performing an mathematical operation. For example, in Fig. 4 the preliminary local bandwidth availability for day-type "weekday" in network area 1 is defined by overlaying graphs of the free bandwidth recordings for three days of the monitoring period that were defined as weekdays, plotting the mathematical minimum of the three graphs, and defining that minimum to be the preliminary bandwidth availability for day-type weekday in network area 1.

After defining the preliminary local network availability for each day-time in each network area, a final global network availability may be defined for each day-type. According to one embodiment, the final global network availability is defined for a particular day-type by overlaying graphs of the preliminary network availabilites for that day-type from the various network areas, performing a mathematical operation, and plotting the result. For example, in Fig. 5 the global network availability for the day-type "weekday" is defined in a DDS with two